

PATENT ABSTRACTS OF JAPAN

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(71)Applicant : MATSUSHITA ELECTRIC IND
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(72)Inventor : IDOTA TAKESHI

TAKEUCHI YOSHINORI

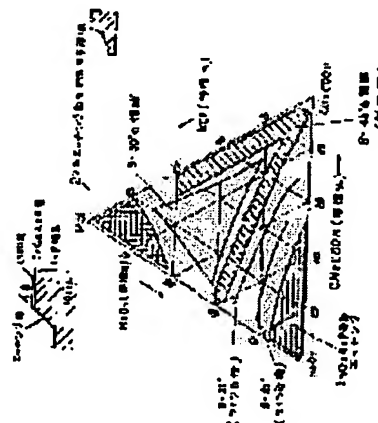
(54) ETCHANT AND ETCHING METHOD

(57)Abstract:

PURPOSE: To make it possible to form an etching face, which forms an angle of 45° with the (100) face and is vertical to the (01-1) face, on an InP crystal substrate by using, for etchant, the mixed liquid of hydrochloric acid, hydrogen peroxide, and acetic acid, wherein the values of respective volume percentages of the hydrochloric acid, the hydrogen peroxide, and the acetic acid meet the specified formulas.

CONSTITUTION: The solution, wherein hydrochloric acid, hydrogen peroxide, and acetic acid are so mixed as to meet the formulas that $(x-a)/9=(y+a-40)/13=(60-z)/24$ at the time of $3 \leq z \leq 93$ and $3 \leq z \leq 60$, and $(x-a)/3=(y+a-400)/4=(60-z)/7$ at the time of $60 \leq z \leq$

93 (but here x shows the volume percentage % of hydrochloric acid, y that of hydrogen peroxide, and z that of acetic acid), is used as etchant. But, a's among the said formulas shall be $15 \leq a \leq 20$. Moreover, an InGaAsP layer is formed on the (100) InP crystal substrate, and on the (100) face of the InGaAsP layer, an etching mask, where a pattern including the line in the [01-1] direction is patterned, is formed, and using the said etchant the InGaAsP layer and the InP crystal substrate are etched.



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